



Patient On Antihypertensives Drug and Presence of Dental Caries

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ABSTRACT:

BACKGROUND: Hypertension is a common disease encountered in dental setting. It has widespread, terrible consequences, and life-long treatment requires an attentive approach by dentists. Hypertension management in dental offices includes disease recognition and correct measurement, knowledge of its treatment and oral adverse effects, and risk assessment for dental treatment.

MATERIALS AND METHODS: we reviewed patient records and analysed the data of 400 patients between June 2019 and February 2021. Approval of the ethical committee was taken before the start of the study. Records of the total number of patients with hypertension are collected. They were both male and female patients. Data collected was tabulated, analysed using SPSS statistical software. Data analysis done using chi square test. P value of 0.05 as level of significance.

RESULTS: From the data recorded it was evident that the majority of the hypertensive patients examined during the course of study belonged to the age group of 56-65 years. Data showed that out of 100 participants, 53 were males and 46 were females. Most common age group under anti hypertensive drugs to have dental caries is 56-65 years of age

CONCLUSION: The frequency of potential oral manifestations in patients with hypertension was significantly high. Oral complications are inevitable in patients taking anti-hypertensive medications, and in most cases it is not possible to change or decrease the dosage of medications. Regular dental examinations and palliative treatment can play a role in improving the patients' quality of life.

KEYWORDS: Hypertension, dental caries, gingivitis, poor oral hygiene.

Introduction:

Hypertension is the most common cardiovascular disease, and its prevalence in adults in developed countries is about 20% to 30%,⁽¹⁾ while it is 2-5% in children

and adolescents.^[(2-4)] Anti-hypertensive drugs are a treatment choice for half of hypertensive patients.^[(5,6)] These medications can cause various oral side effects within a few weeks of starting the

drug intake.[(4)] The oral mucosal lesions are usually detectable by taking a history and clinical examination. However, due to the clinical similarity of the lesions, they may be missed in some cases.[(7)] The severity of complications is associated with some patients and medication related factors. Patient related factors include gender, age, diseases, and genetics. The drug related factors include the method of drug administration, duration, dosages, and the drug metabolism.[(8)] The side effects of anti-hypertensive drugs include xerostomia, lichenoid reactions, mucosal burning, gingival hypertrophy, angioedema, and bleeding. Many systemic drugs and metallic restorations can cause oral lichenoid reactions and their pathogenesis is still unknown. They are clinically and histologically similar to lichen planus lesions, but they are unilateral and have a traumatic pattern.[(9,10)] Angioedema is a common clinical manifestation that occurs as a rapid but painless swelling on the lips, tongue, and areas around the eyes, and is caused by contact with a particular medication in susceptible patients. Angioedema involving the oropharynx is life-threatening, [(11)] which is induced by angiotensin-converting enzyme inhibitors. Dental disease often has an oral manifestation of acute, chronic, and systemic disease. Studies have indicated that afflictions such as heart disease, diabetes, stroke, hypertension, multiple sclerosis, and HIV often can be discovered during a routine visit to the dentist.

Hypertension and use of anti hypertensive drugs has a definitive effect on pH of stimulated saliva which can be attributed to many oral detrimental changes.[(12)] Hence, it is necessary to monitor blood

pressure for maintenance of oral health. The influence of dental diseases on health is mostly attributed to the nature of these diseases, which are primarily chronic bacterial infections that have an effect on compromised tooth support and a generalized effect,[(13)] whereby the increased systemic levels of inflammatory mediators contribute to endothelial dysfunction and carotid artery plaque formation. Periodontitis is one of the most chronic diseases. The mouth is an ideal area for bacteria and those affected by periodontal disease are at increased risk, for potentially fatal bacteria entering the bloodstream through infected oral tissue. Those[(14)]suffering from periodontitis are highly susceptible to major health issues such as premature births, low birth-weight babies, cancer, anorexia, vascular and heart disease including that caused by the introduction of germs that attack the heart's mitral valve. Our team has extensive knowledge and research experience that has translated into high quality publications[(15–24)],[(25–28)],[(29–33)] [(34)]. This study was designed to evaluate the prevalence of patients with anti hypertensive drugs and dental caries. (35–44)

Materials and methods:

This research study was defined as a descriptive study where all the patient's data who reported to saveetha dental college and hospitals, SIMATS, Chennai, India and were diagnosed with hypertension were obtained from the dental information archiving software(DIAS). This study setting was a university setting and the research study was conducted in the dental clinics of saveetha dental college. The data are collected from June 2020 to February 2021. All the case sheets were

approved and verified by an external reviewer. Approval of the ethical committee was taken before the start of the study.

The data was then arranged in a methodical manner using Microsoft Excel software and was tabulated on the basis of 4 parameters namely, age of the subjects, gender of subject, dental caries and location of dental caries. The data was validated by an additional reviewer. Any incomplete or censored data that was present in the collected data was excluded from the study. Statistical analysis of the compiled data was performed using IBM SPSS statistical analysers. Chi square test was done for statistical analysis.

Results and discussion:

From the data recorded it was evident that the majority of the hypertensive patients examined during the course of study belonged to the age group of 56-65 years. Data showed that out of 100 participants, 53 were males and 46 were females. Most common age group under anti hypertensive drugs to have dental caries is 56-65 years of age. There is a significant association between the hypertensive patients' age and dental caries. (Chi-square, $p < 0.05$ -significant) [Graph 1]. Males are more affected with dental caries when compared to females. 34% of male complain of dental caries after usage of anti hypertensive drugs. There is no significant association between the hypertensive patients' gender and dental caries. (Chi-square, $p > 0.05$ - not significant) [Graph 2]. Dental caries are most commonly seen in sextant 6 followed by sextant 4. There is no significant association between the location of tooth and dental caries. (Chi-square, $p > 0.05$ - not significant) [Graph 3].

Hypertension or high blood pressure, sometimes arterial hypertension, is a chronic medical condition in which the blood pressure in the arteries is elevated. This requires the heart to work harder than to circulate blood through the blood vessels. Of 100 participants who took part in this study, 53 were males and 46 were females. Several systemic factors are known to cause oral diseases or conditions and among those are the intake of drugs. An adverse drug reaction is defined by WHO as 'a response to a drug which is noxious and unintended, and which occurs at doses normally used in man for the diagnosis, therapy of diseases or for the modification of physiological function. Numerous hypertensive drugs have the capability to cause adverse effects in the oral cavity. These Drugs have the potential to cause conditions such as dental caries, salivary gland disease, ulceration, taste alterations, discoloration of teeth, mucosal pigmentation, white lesions and swellings. These side effects interfere with the patient's normal function and increases the risk of infection, pain and possible tooth loss. It has been reported that the most common side effects of drugs are dental caries, xerostomia, Altered taste and stomatitis.[42]. The health professionals understand the complications that medications can have on the oral health of their patients. In order to properly diagnose and treat patients, a complete history including prescription medications, over the counter drugs and dietary supplements should be recorded which will enable the healthcare team to identify the causative agents.

In a study conducted by Habbab et al,[(14)] the number of males taking medication was

higher than females; however, the side effects did not differ significantly between males and females, similar to our results. Also, the highest age group participating in the present study was over 60 years of age, while in the study by Kumar et al.,[(45)] the highest number of patients belonged to the age group of 41-50 years.[(46)] This is due to a higher number of medications taken by the elderly compared with younger individuals. This results coincides with our results. The results of the present study showed that the highest number of patients with dental caries are males compared to females. These results are inconsistent with the data reported by Valizadeh et al.,[(47)]who reported that females are more likely to have dental caries. High blood pressure medications, similar to other drugs, can cause side effects. It is important that the oral health care provider has an understanding of the different types of reactions they can cause. While most people have mild and no side effects from taking hypertensive medications,[(48)] it is still important to stay informed and work closely with the physician to manage any concerns associated with these kinds of medications. The patient's physician is able to select from a number of medication options if side effects are experienced by the patient. Drug–drug interactions and oral side effects are very common[(49)]. Common drug interactions that may be encountered in the dental office involve medications often prescribed by the dentist. Routine and surgical procedures in the dental office usually require administration of local anesthetics with or without epinephrine, which may react adversely with beta-blockers. In addition, conscious sedation has become a common practice in many dental offices in management of patients with fear(50). Moreover, NSAIDs

and antifungals are commonly prescribed for oral pain and fungal infections.(51)(36)

Conclusion:

The study concluded that there is association between hypertension and dental caries. In the present study, the only complication was dental caries and their side effects, which increased with age. In general, oral complications in people with systemic diseases that require long-term drug treatment are unavoidable, and in most cases, it is not possible to change the medication or decrease the dosage. Therefore, in these patients, regular dental examinations and the use of empirical therapy can play a significant role in improving their quality of life.

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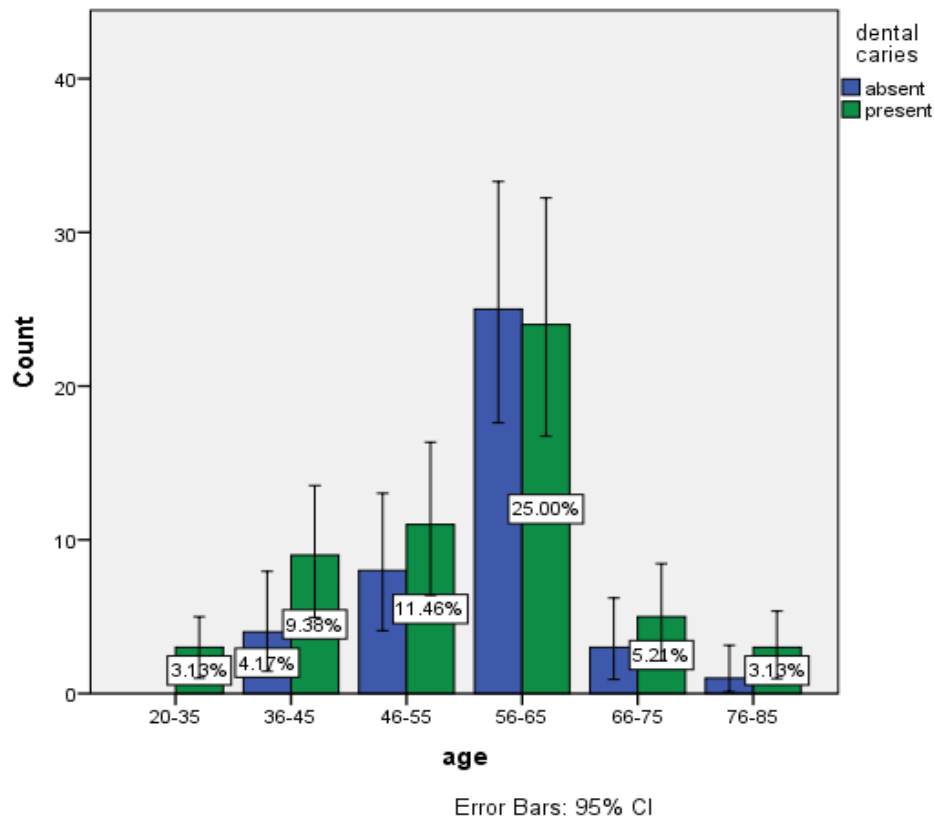
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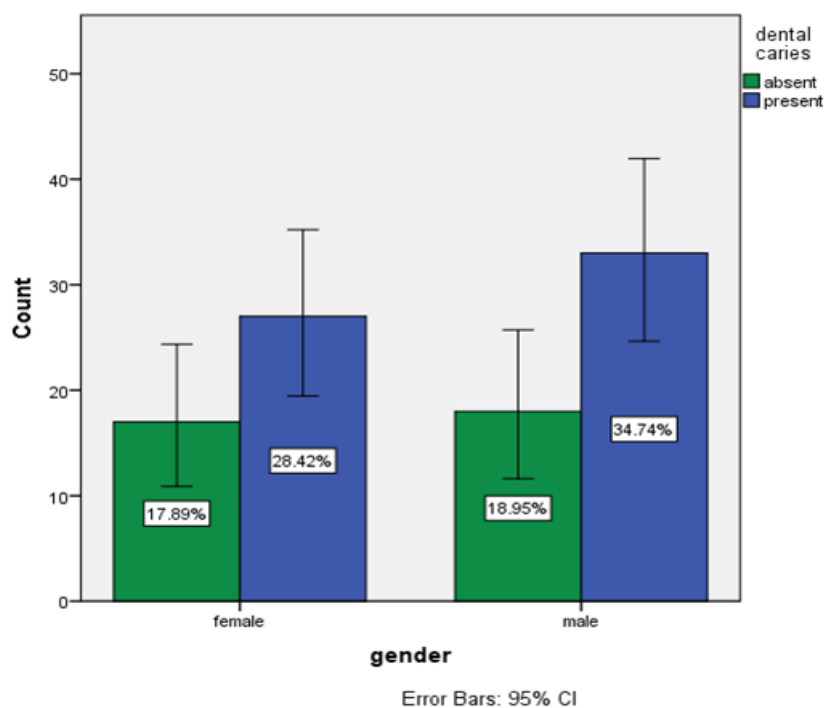
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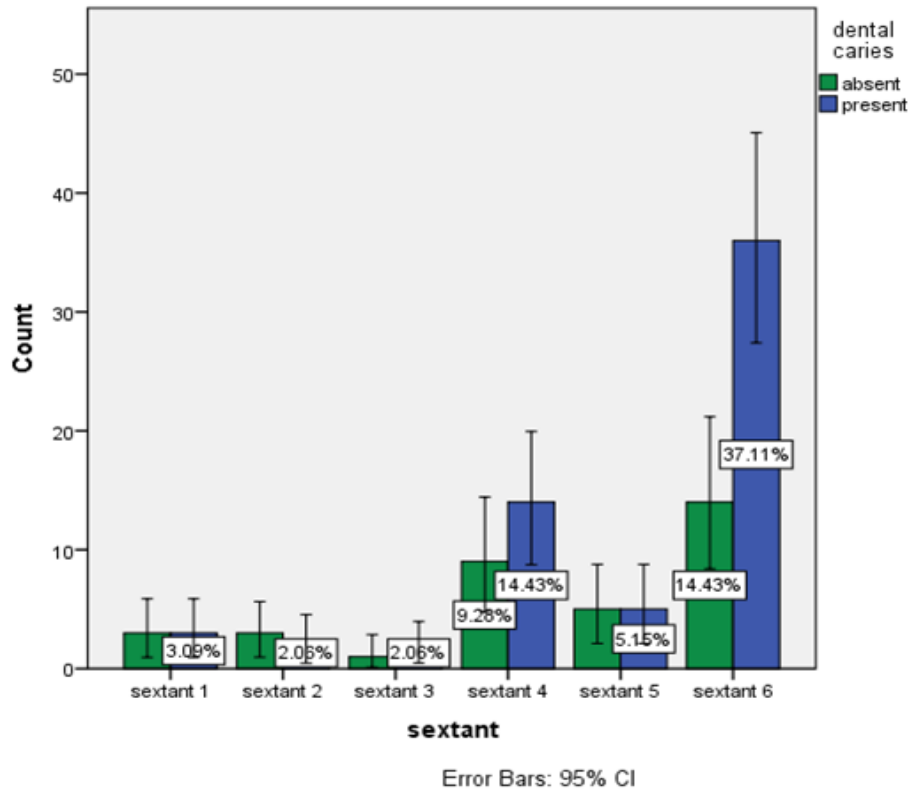
Graph 1: Bar graph showing the Association of dental caries and age group of patients with anti hypertensive drugs. Blue colour represents the presence of dental caries and green colour represents the absence of dental caries. Most common

age group under anti hypertensive drugs to have dental caries is 56-65 years of age. There is a significant association between the hypertensive patients' age and dental caries. (Chi-square, $p < 0.05$ -significant)



Graph 2: Bar graph showing the Association of dental caries and gender of patients with anti hypertensive drugs. Blue colour represents the presence of dental caries and green colour represents the absence of dental caries. Most common

gender to have dental caries is male. There is no significant association between the hypertensive patients' gender and dental caries. (Chi-square, $p > 0.05$ - not significant)



Graph 3: Bar graph showing the Association of dental caries and sextant with anti hypertensive drugs. Blue colour represents the presence of dental caries and green colour represents the absence of dental caries. Most common sextant to have dental caries is sextant 6. There is no significant association between the hypertensive patients' sextant and dental caries. (Chi-square, $p > 0.05$ - not significant)